

and delete the multiple dependent claims in this application, and thereby eliminate excessive claim fees. Such amendments are formal in nature and no new matter is added by any of the above amendments. Entry of this amendment and early examination of this application are respectfully solicited.

Respectfully submitted,

**KAZUO OKAMOTO *et al.***

August 1, 2001 By: Wm. H. Schwaige, Reg. No. 25,918  
(Date) for

**LESLIE L. KASTEN, JR.**

Registration No. 28,959

**AKIN, GUMP, STRAUSS, HAUER & FELD, L.L.P.**

One Commerce Square

2005 Market Street - Suite 2200

Philadelphia, PA 19103-7086

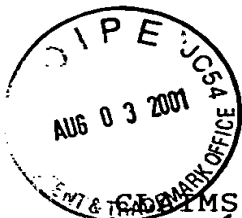
Telephone: (215) 965-1200

**Direct Dial: (215) 965-1290**

Facsimile: (215) 965-1210

E-Mail: lkasten@akingump.com

LLK:sm  
Enclosure



[We claim:]

1. A transmission apparatus for video information characterized by having:

an input part for inputting video information transmitted by a central processing unit;

a level information generation part for generating level information of each pixel on a screen based on at least said video information;

a memory part for storing level information of each pixel in the entire region of the screen;

a region extraction part for extracting a region on the screen including pixels related to said video information;

an update region level information generation part for generating level information of each pixel in said region of the screen based on, at least, either the level information of each pixel generated by said level information generation part or the level information of each pixel stored in said memory part;

a compression part for compressing the information amount of level information of each pixel in said region of the screen; and

a communication part for transmitting position information of said region of the screen and said compressed level information.

2. A transmission apparatus for video information characterized by having:

an input part for inputting video information transmitted by a central processing unit;

a level information generation part for generating level information of each pixel on a screen based on at least said video information;

a memory part for storing level information of each pixel in the entire region of the screen;

a region extraction part for extracting a region on the screen including pixels related to said video information;

an update region level information generation part for generating differential information of the level information of each pixel in said extracted region of the screen based on, at least, the level information of each pixel generated by said level information generation part and the level information of each pixel stored in said memory part;

a compression part for compressing the information amount of the differential information of the level information of each pixel in said extracted region of the screen; and

a communication part for transmitting position

information of said region of the screen and said compressed differential information.

3. A transmission apparatus for video information according to <sup>[Claim 1,]</sup> ~~Claims 1 or 2~~, characterized in that said extracted region of the screen is a region in a rectangular form including pixels of m rows and n columns (m, n are positive integers of 1 or more, respectively).

4. A transmission apparatus for video information according to Claim 3, characterized in that said extracted region of the screen is a set of pixels wherein the upper i bits of the row address (in the case that the row address is assumed to be data of h bits, i is a positive integer satisfying  $1 \leq i \leq (h-1)$ ) and the upper j bits of the column address (in the case that the column address is assumed to be data of k bits, j is a positive integer satisfying  $1 \leq j \leq (k-1)$ ) of each pixel on the screen are the same.

5. A transmission apparatus for video information according to <sup>[Claim 1,]</sup> ~~Claims 1 or 2~~, characterized in that said communication part is a wireless communication part.

6. A transmission apparatus for video information according to <sup>[Claim 1,]</sup> ~~Claims 1 or 2~~, characterized, in addition,

in that:

said memory part outputs level information of each pixel in the entire region of the screen to said update region level information generation part at least once or more, for every constant period of time;

said compression part compresses the information amount of the level information of each pixel in said entire region of the screen; and

said communication part transmits identification information for identifying said compressed level information of the entire region of the screen from said compressed level information of the region of the screen or from said compressed differential information as well as said compressed level information of the entire region of the screen.

7. A transmission system for video information characterized by having:

a first terminal apparatus including a central processing unit and a transmission apparatus for video information according to Claim 1; and

a second terminal apparatus, wherein

said second terminal apparatus has:

a communication part for receiving position information of said region of the screen and said

compressed level information;

an expansion part for expanding said compressed level information and outputs level information of each pixel in the extracted region of the screen;

a memory part which stores the level information of each pixel in the entire region of the screen and which stores the level information of each pixel outputted by said expansion part in accordance with the position information of said region of the screen; and

a display part for displaying a screen in accordance with the level information of each pixel stored in said memory part.

8. A transmission system for video information characterized by having:

a first terminal apparatus including a central processing unit and a transmission apparatus for video information according to Claim 2; and

a second terminal apparatus, wherein

said second terminal apparatus has:

a communication part for receiving position information of said region of the screen and said compressed differential information;

an expansion part for expanding said compressed differential information and generates differential

information of each pixel in the extracted region of the screen;

a memory part which stores the level information of each pixel in the entire region of the screen and which stores the level information of each pixel generated by the level information generation part in accordance with the position information of said region of the screen;

said level information generation part for generating level information of each pixel based on the differential information of each pixel generated by said expansion part and the level information of each pixel stored in said memory part; and

a display part for displaying a screen in accordance with the level information of each pixel stored in said memory part.

9. A transmission system for video information according to <sup>[claim 7,]</sup> ~~claims 7 or 8~~, characterize in that said communication parts of said first terminal apparatus and said second terminal apparatus are wireless communication parts, respectively.

10. A transmission method for video information, characterized by having:

the input step of inputting video information

transmitted by a central processing unit;

the level information generation step of generating level information of each pixel on a screen based on, at least, said video information;

the memory step of storing said level information of each pixel in a memory part;

the region extraction step of extracting a region of the screen which includes pixels related to said video information;

the update region level information generation step of generating level information of each pixel in said region of the screen based on, at least, either the level information of each pixel generated in said level information generation step or the level information of each pixel stored in said memory part;

the compression step of compressing the information amount of the level information of each pixel in said region of the screen; and

the transmission step of transmitting position information of said region of the screen and said compressed level information.

11. A transmission method for video information, characterized by having:

the input step of inputting video information



transmitted by a central processing unit;

the level information generation step of generating level information of each pixel on a screen based on, at least, said video information;

the region extraction step of extracting a region of the screen which includes pixels related to said video information;

the update region level information generation step of generating differential information of level information of each pixel in said extracted region of the screen based on, at least, the level information of each pixel generated in said level information generation step and the level information of each pixel stored in a memory part;

the memory step of storing said level information of each pixel in said memory part;

the compression step of compressing the information amount of the differential information of the level information of each pixel in said extracted region of the screen; and

the transmission step of transmitting position information of said region of the screen and said compressed differential information.

## 12. A transmission method for video information

[claim 10,]  
according to ~~Claims 10 or 11~~, characterized in that said extracted region of the screen is a rectangular region including pixels of m rows and n columns (m, n are positive integers of 1 or more, respectively).

13. A transmission method for video information according to Claim 12, characterized in that said extracted region of the screen is a set of pixels wherein the upper i bits of the row address (in the case that the row address is assumed to be data of h bits, i is a positive integer satisfying  $1 \leq i \leq (h-1)$ ) and the upper j bits of the column address (in the case that the column address is assumed to be data of k bits, j is a positive integer satisfying  $1 \leq j \leq (k-1)$ ) of each pixel on the screen are the same.

14. A transmission method for video information according to ~~Claims 10 or 11~~, [claim 10,] characterized in that information are transmitted by means of a wireless communication in said transmission step.

15. A transmission method for video information according to ~~Claims 10 or 11~~, [claim 10,] characterized by further having:

the entire region level information generation step

of reading out level information of each pixel in the entire region of the screen from said memory part with a frequency of at least once or more for a constant period of time;

the entire region level information compression step of compressing the information amount of the level information of each pixel in the entire region of the screen; and

the entire region level information transmission step of transmitting identification information for identifying said compressed level information of the entire region of the screen from said compressed level information of the region of the screen or from said compressed differential information and said compressed level information of the entire region of the screen.

16. A transmission method for video information characterized by having:

each step of the transmission method for video information according to Claim 10;

the communication step of receiving said position information of the region of the screen and said compressed level information of the region of the screen;

the expansion step of expanding said compressed level information of the region of the screen and of

outputting level information of each pixel of the region of the screen;

the memory step of storing the level information of each pixel outputted in said expansion step in a memory part in accordance with said position information of the region of the screen; and

the display step of displaying a screen in accordance with the level information of each pixel stored in said memory part.

17. A transmission method for video information characterized by having:

each step of the transmission method for video information according to Claim 11;

the reception step of receiving said position information of the region of the screen and said compressed differential information;

the expansion step of expanding said compressed differential information and of generating differential information of level information of each pixel of the extracted region of the screen;

the level information generation step of generating level information of each pixel based on the differential information of the level information of each pixel generated in said expansion step and the level information

of each pixel stored in the memory part

the memory step of storing the level information of each pixel generated in said level information generation step in said memory part in accordance with said position information of the region of the screen; and

the display step of displaying a screen in accordance with the level information of each pixel stored in said memory part.

18. A transmission method for video information according to claim 16, ~~claims 16 or 17~~, characterized in that said transmission step and said reception step are implemented by means of a wireless communication.